

What is claimed is:

1 A method for manufacturing a quartz glass ingot comprising the steps of dropping fused silica powder from the top of the rotating furnace, depositing the fused silica at the center of the furnace bed, and extending the deposit toward the outward of the furnace by heating and rotation of the furnace.

2 A quartz glass ingot manufacturing apparatus comprising a rotatable furnace, a ceiling hung over the furnace independent from the rotation of the furnace, a silica powder supply means and a burner installed at the ceiling.

3. The a quartz glass ingot manufacturing apparatus of claim 2, wherein the side walls of the furnace consist of silicon carbide bricks.

Sub A1 4. The quartz glass ingot manufacturing apparatus of claim 2 or 3, wherein the furnace bed being covered with a layer of zirconia particles.

5. A method for manufacturing an elongated quartz glass ingot comprising the steps of fusing a silica powder with an oxygen-hydrogen flame, depositing the fused silica on a furnace bed, and withdrawing the molten fused silica through a nozzle having an aperture which is disposed at the furnace bed.

6. The method of manufacturing an elongated quartz glass ingot of claim 5, wherein inserting a dummy member into the nozzle hole, adhering the dummy member to the molten fused silica and withdrawing the fused silica maintaining tension inside the molted fused silica.

Sub A2 7. The method of manufacturing an elongated quartz glass ingot of claim 5 or 6, wherein laying a quartz glass plate between the furnace bed and the nozzle, thereby sealing the nozzle from the atmosphere of the furnace.

8. The method for manufacturing an elongated quartz glass ingot of any one of claim 5 to 7, wherein the nozzle being projected to inside of the furnace.

9. An elongated quartz glass ingot manufacturing apparatus comprising a silica powder supply means disposed at the ceiling of a furnace, an oxygen-hydrogen flame generating means disposed at the ceiling, a molted fused silica withdrawing means disposed under the furnace, a coolant gas supply and exhaust means for adjusting the viscosity of the fused silica, a sealing means insulating the withdrawing means from the inside furnace

atmosphere, a support means for supportin the withdrawn moleten fused silica and maintaining tension of the fused silica, and a lift means for lowering and lifting the support means.

10. A quartz glass burner for manufacturing a quartz glass ingot comprising an outer casing, a tapered oxygen gas chamber disposed inside the outer casing and being connected to an oxygen supply tube, a plurality of oxygen gas nozzle disposed at the edge of the oxygen gas chamber, silica powder nozzles disposed between the outer casing and the oxygen gas chamber and the top of the nozzle being positioned inside the outer casing, and a hydrogen gas supply means for supplying the hydrogen gas along the outer wall of the oxygen gas chamber.

11. The quartz glass burner fir manufacturing a quartz glass ingot of claim 10, whercin the silica supply nozzles being arranged circular and equidistantly.

Sub A 3
12. The quartz glass burner fir manufacturing a quartz glass ingot of claim 10 or 11, wherein the oxygen gas nozzles being arranged noncircular and equidistantly and a part of the hydrogen gas being introduced between the oxygen gas nozzles.